Canadian Journal of Microbiology

Revue canadienne de microbiologie

Volume 38, 1992

Contents / Sommaire

JANUARY / JANVIER

REVIEWS / SYNTHÈSES

Kathleen L. Londry and Phillip M. Fedorak Benzoic acid intermediates in the anaerobic biodegradation of phenols 1

Donald W. Warburton, Karen L. Dodds, Ron Burke, Murray A. Johnston, and Patrick J. Laffey A review of the microbiological quality of bottled water sold in Canada between 1981 and 1989 12

MINIREVIEW / MINISYNTHÈSE

C. L. Wellington, C. E. Bauer, and J. T. Beatty Photosynthesis gene superoperons in purple nonsulfur bacteria: the tip of the iceberg? 20

ARTICLES

Donald Berman, Robert Sullivan, and Christon J. Hurst Effect of the method of preparing monochloramine upon inactivation of MS2 coliphage, *Escherichia coli*, and *Klebsiella pneumoniae* 28

Constance M. Kramer and Martha M. Kory Bacteria that degrade *p*-chlorophenol isolated from a continuous culture system 34

Sonia Senesi, Giulia Freer, Giovanna Batoni, Simona Barnini, Anna Capaccioli, and Giovanni Cercignani Role of spore coats in the germinative response of *Bacillus cereus* to adenosine and its analogues 38

Robert M. Zablotowicz, Caroline M. Press, Nicola Lyng, Gerry L. Brown, and Joseph W. Kloepper Compatibility of plant growth promoting rhizobacterial strains with agrichemicals applied to seed 45

S. Batista, S. Castro, O. M. Aguilar, and G. Martínez-Drets Induction of C_4-dicarboxylate transport genes by external stimuli in *Rhizobium meliloti* 51

Josette Garnier, Pierre Servais, and Gilles Billen Bacterioplankton in the Seine River (France): impact of the Parisian urban effluent 56

Ken F. Jarrell, David Faguy, Anne M. Hebert, and Martin L. Kalmokoff A general method of isolating high molecular weight DNA from methanogenic archaea (archaebacteria) 65

P. Chagnaud, C. K. N. Chan Kwo Chion, R. Duran, P. Naouri, A. Arnaud, and P. Galzy Construction of a new shuttle vector for *Lactobacillus* 69

Tomas Jacobsen and Otto M. Poulsen Separation and characterization of 61- and 57-kDa lipases from *Geotrichum candidum* ATCC 66592 75

NOTE

David E. McMillin, Lycurgus L. Muldrow, and Shwanda J. Laggette Simultaneous detection of toxin A and toxin B genetic determinants of *Clostridium difficile* using the multiplex polymerase chain reaction 81

Instructions to Authors ix

Recommandations aux auteurs xi

FEBRUARY / FÉVRIER

MINIREVIEW / MINISYNTHÈSE

Anthony J. Clarke and Claude Dupont *O*-Acetylated peptidoglycan: its occurrence, pathobiological significance, and biosynthesis 85

ARTICLES

Jacob K. P. Kwaga and John O. Iversen Laboratory investigation of virulence among strains of *Yersinia enterocolitica* and related species isolated from pigs and pork products 92

M. A. Glazebrook, L. C. Vining, and R. L. White Growth morphology of *Streptomyces akiyoshiensis* in submerged culture: influence of pH, inoculum, and nutrients 98

Yeong-Hwan Han, Robert M. Smibert, and Noel R. Krieg Cytochrome composition and oxygen-dependent respiration-driven proton translocation in *Wolinella curva*, *Wolinella recta*, *Bacteroides ureolyticus*, and *Bacteroides gracilis* 104

Dimitrios G. Georgakopoulos and David C. Sands Epiphytic populations of *Pseudomonas syringae* on barley 111

João P. S. Cabral Mode of antibacterial action of dodine (dodecylguanidine monoacetate) in *Pseudomonas syringae* 115

G. D. Inglis and G. J. Boland Evaluation of filamentous fungi isolated from petals of bean and rapeseed for suppression of white mold 124

A. Galván, M. A. Marcotegui, and F. de Castro Ultrastructure of natural and induced myxospores of *Archangium gephyra* 130

G. J. Merkel Effects of culture conditions on the in vitro infection of fibroblasts by *Candida albicans* 135

Alison M. Jones and Roger Knowles Sulfide alleviation of acetylene inhibition of nitrous oxide reduction by *Flexibacter canadensis* 143

J. Hašek, J. Jochová, P. Dráber, V. Viklický, and E. Streiblová Localization of a 210-kDa microtubule-interacting protein in the yeast *Saccharomyces cerevisiae* 149

NOTES

Kunihiro Shinagawa, Teimi Takechi, Naonori Matsusaka, and Shunji Sugii Purification of an enterotoxin produced by *Bacillus cereus* by immunoaffinity chromatography using a monoclonal antibody 153

Maria Luz C. George and Françoise M. Robert Competition among *Rhizobium leguminosarum* bv. *phaseoli* strains for nodulation of common bean 157

Pearl I. Peterkin, Mary-Ann Gardiner, Naeem Malik, and Edmund S. Idziak Plasmids in *Listeria monocytogenes* and other *Listeria* species 161

Geoffrey B. Smith and A. G. Wollum II Erratum: Bacterial culture history affects the attachment of *Bradyrhizobium japonicum* to host *Glycine max* roots 164

MARCH / MARS

ARTICLES

Laszlo Lugosi Relative persistence capacity of BCG substrains in mouse spleen. Computerized statistical analysis. Multiple comparison 165

Alicia Carrasco, Jaime Schwencke, and Margarita Caru Isolation of *Frankia* from nodules of *Trevoa trinervis*: ultrastructural characterization 174

J.-F. Blais, J. C. Auclair, and R. D. Tyagi Cooperation between two *Thiobacillus* strains for heavy-metal removal from municipal sludge 181

D. Jit S. Arora and Michel Houde Modulation of murine macrophage responses stimulated with influenza glycoproteins 188

Angus Gilchrist, James A. Fisher, and John Smit Nucleotide sequence analysis of the gene encoding the *Caulobacter crescentus* paracrystalline surface layer protein 193

C. Yanze Kontchou and Roland Blondeau Biodegradation of soil humic acids by *Streptomyces viridosporus* 203

M. H. R. Gomes and M. A. Resende *Fonsecaea pedrosoi*: lipid composition and determination of susceptibility to amphotericin B 209

Nitin K. Saksena and Nicole Truffaut Cloning of tetracycline-resistance genes from various strains of *Clostridium perfringens* and expression in *Escherichia coli* 215

Zhihong Chen, Yinliang Chen, Yuan Shi, Xuepin Yie, and Guangzi Yang Microcarrier culture of fish cells and viruses in cell culture bioreactor 222

Itzhak Brook and Edith H. Frazier Recovery of *Bacteroides fragilis* group from clinical specimens following antimicrobial therapy 226

Abdel Kader Yousef Gamal El-Din A succinate transport mutant of *Bradyrhizobium japonicum* forms ineffective nodules on soybeans 230

Susana Merino, Silvia Camprubí, and Juan M. Tomás Characterization of an O-antigen bacteriophage from *Aeromonas hydrophila* 235

Gladys Martinetti and Joyce E. Loper Mutational analysis of genes determining antagonism of *Alcaligenes* sp. strain MFA1 against the phytopathogenic fungus *Fusarium oxysporum* 241

Cao-Guo Yu, Michael Ma, Tsuey Ding, Frank Hetrick, and Hei-Ti Hsu Biochemical characterization and time-course analysis of *Lymantria dispar* nuclear polyhedrosis virus with monoclonal antibodies 248

NOTES

Sanjay Palnitkar and Anil Lachke Effect of nitrogen sources on oxidoreductive enzymes and ethanol production during D-xylose fermentation by *Candida shehatae* 258

James J. Shirey and Gary K. Bissonnette Sheen formation and growth response of groundwater bacteria to reduced oxygen concentrations during incubation of M-Endo medium 261

APRIL / AVRIL

MINIREVIEW / MINISYNTHÈSE

Marie L. O'Shea and Richard Field Detection and disinfection of pathogens in storm-generated flows 267

ARTICLES

Yahya Koulali, Jean-Louis Fonvieille, Jane-Marie Touze-Soulet, Émile Benizri et Robert Dargent Influence de la monensine sur la composition des parois de quelques champignons filamenteux 277

L. de Souza and M. C. Koury Isolation and biological activities of endotoxin from *Leptospira interrogans* 284

Arthur S. Brecher, Timothy A. Moehlman, and William D. Hann Utilization of chymotrypsin as a sole carbon and (or) nitrogen source by *Escherichia coli* 290

Sharon Harris and Warwick Silvester Nitrogenase activity and growth of *Frankia* in batch and continuous culture 296

F. B. Holl and C. P. Chanway Rhizosphere colonization and seedling growth promotion of lodgepole pine by *Bacillus polymyxa* 303

Radheshyam K. Jayaswal, Marcel A. Fernandez, Luisa Visintin, and Ram S. Upadhyay Transposon Tn*5-259* mutagenesis of *Pseudomonas cepacia* to isolate mutants deficient in antifungal activity 309

C. E. Park and G. W. Sanders Occurrence of thermotolerant campylobacters in fresh vegetables sold at farmers' outdoor markets and supermarkets 313

Michael Freitag and Jeffrey J. Morrell Changes in selected enzyme activities during growth of pure and mixed cultures of the white-rot decay fungus *Trametes versicolor* and the potential biocontrol fungus *Trichoderma harzianum* 317

Derek H. Ball, Bonnie J. Wiley, and Elwyn T. Reese Effect of substitution of C-6 on the susceptibility of pullulan to pullulanases. Enzymatic degradation of modified pullulans 324

Gregory Bezanson, Susan Burbridge, David Haldane, and Thomas Marrie *In situ* colonization of polyvinyl chloride, brass, and copper by *Legionella pneumophila* 328

R. Balasubramanian and M. S. Manocha Cytosolic and membrane-bound chitinases of two mucoraceous fungi: a comparative study 331

P. Hemalata Reddy, Sastry S. Burra, and P. Suryanarayana Murthy Correlation between calmodulin-like protein, phospholipids, and growth in glucose-grown *Mycobacterium phlei* 339

Sharon L. Sprout, Louise M. Nelson, and James J. Germida Influence of metribuzin on the *Rhizobium leguminosarum* – lentil (*Lens culinaris*) symbiosis 343

NOTES

A. Moreau, F. W. Paradis, R. Morosoli, F. Shareck, and D. Kluepfel A novel shuttle vector for *Streptomyces* spp. and *Escherichia coli* as a tool in site-directed mutagenesis 350

Y. Takubo, T. Inoue, T. Kunimatsu, M. Kondo, and T. Nishihara Biochemical defects of outermost layer deficient mutants during sporulation of *Bacillus megaterium* 354

MAY / MAI

MINIREVIEW / MINISYNTHÈSE

B. A. Jaffee Population biology and biological control of nematodes 359

ARTICLES

Gary A. Toranzos and Abdiel J. Alvarez Solid-phase polymerase chain reaction: applications for direct detection of enteric pathogens in waters 365

Allan Matte, Cecil W. Forsberg, and Ann M. Verrinder Gibbins Enzymes associated with metabolism of xylose and other pentoses by *Prevotella* (*Bacteroides*) *ruminicola* strains, *Selenomonas ruminantium* D, and *Fibrobacter succinogenes* S85 370

J. C. Pendland and D. G. Boucias Ultrastructural localization of carbohydrate in cell walls of the entomogenous hyphomycete *Nomuraea rileyi* 377

Anne W. Glenn, Frank F. Roberto, and Thomas E. Ward Transformation of *Acidiphilium* by electroporation and conjugation 387

W. M. Gill and A. L. J. Cole Cavity disease of *Agaricus bitorquis* caused by *Pseudomonas cepacia* 394

Audrey W. Jarvis, Vaughan R. Parker, and Moana B. Bianchin Isolation and characterization of two temperate phages from *Lactococcus lactis* ssp. *cremoris* C3 398

C. L. Masy, A. Henquinet, and M. M. Mestdagh Fluorescence study of lectinlike receptors involved in the flocculation of the yeast *Saccharomyces cerevisiae* 405

Koichiro Yamamoto, Takeshi Honda, Toshio Miwatani, Shigeru Tamatsukuri, and Shuji Shibata Enzyme-labeled oligonucleotide probes for detection of the genes for theromostable direct hemolysin (TDH) and TDH-related hemolysin (TRH) of *Vibrio parahaemolyticus* 410

E. H. Pardo, S. Funayama, F. O. Pedrosa, and L. U. Rigo *Pichia stipitis* L-rhamnose dehydrogenase and a catabolite-resistant mutant able to utilize 2-deoxy-D-glucose 417

Kari L. Cargill, Barry H. Pyle, Richard L. Sauer, and Gordon A. McFeters Effects of culture conditions and biofilm formation on the iodine susceptibility of *Legionella pneumophila* 423

Moyasar T. Yahya, Timothy M. Straub, and Charles P. Gerba Inactivation of coliphage MS-2 and poliovirus by copper, silver, and chlorine 430

Devyani Dey, Jyoti Hinge, Abhay Shendye, and Mala Rao Purification and properties of extracellular endoxylanases from alkalophilic thermophilic *Bacillus* sp. 436

NOTE

Lois C. Shadix and Eugene W. Rice Erratum: Evaluation of β-glucoronidase assay for the detection of *Escherichia coli* from environmental waters 443

JUNE / JUIN

THIRTEENTH NORTH AMERICAN SYMBIOTIC NITROGEN FIXATION CONFERENCE /
TREIZIÈME CONFÉRENCE NORD-AMÉRICAINE SUR LA FIXATION SYMBIOTIQUE DE L'AZOTE

C. Van Kessel and L. M. Nelson Foreword / L'avant-propos 445

G. H. Elkan Taxonomy of the rhizobia 446

Dan Turk and Harold H. Keyser Rhizobia that nodulate tree legumes: specificity of the host for nodulation and effectiveness 451

Julie V. Cullimore and Malcolm J. Bennett Nitrogen assimilation in the legume root nodule: current status of the molecular biology of the plant enzymes 461

Pascale de Philip, Pierre Boistard, Andreas Schlüter, Thomas Patschkowski, Alf Pühler, Ursula B. Priefer, Fergal O'Gara, Bert Boesten, and Brian Noonan Developmental and metabolic regulation of nitrogen fixation gene expression in *Rhizobium meliloti* 467

Peter H. Graham Stress tolerance in *Rhizobium* and *Bradyrhizobium*, and nodulation under adverse soil conditions 475

R. S. Smith Legume inoculant formulation and application 485

Janice E. Thies, B. Ben Bohlool, and Paul W. Singleton Environmental effects on competition for nodule occupancy between introduced and indigeous rhizobia and among introduced strains 493

L. D. Kuykendall, B. Saxena, T. E. Devine, and S. E. Udell Genetic diversity in *Bradyrhizobium japonicum* Jordan 1982 and a proposal for *Bradyrhizobium elkanii* sp.nov. 501

Perry Olsen, Mandy Collins, and Wendell Rice Surface antigens present on vegetative *Rhizobium meliloti* cells may be diminished or absent when cells are in the bacteroid form 506

Arvind A. Bhagwat and Donald L. Keister Synthesis of β-glucans by *Bradyrhizobium japonicum* and *Rhizobium fredii* 510

Hari B. Krishnan and Steven G. Pueppke A *nolC-lacZ* gene fusion in *Rhizobium fredii* facilitates direct assessment of competition for nodulation of soybean 515

J. W. Kosanke, R. M. Osburn, G. I. Shuppe, and R. S. Smith Slow rehydration improves the recovery of dried bacterial populations 520

A. B. M. Siddique and A. K. Bal Morphological and biochemical changes in peanut nodules during photosynthate stress 526

Kai-Uwe Riedel, Bernd Masepohl, Werner Klipp, and Alfred Pühler Synthesis of the ferredoxin-like protein FdxN from *Rhizobium meliloti* bacteroids as a fusion protein in *Escherichia coli* 534

Michael E. Baker Similarities between legume–rhizobium communication and steroid-mediated intercellular communication in vertebrates 541

Carol M. Markwei and Thomas A. LaRue Phenotypic characterization of *sym8* and *sym9*, two genes conditioning non-nodulation in *Pisum sativum* 'Sparkle' 548

Vipin Rastogi, Monika Labes, Turlough Finan, and Robert Watson Overexpression of the *dctA* gene in *Rhizobium meliloti*: effect on transport of C_4 dicarboxylates and symbiotic nitrogen fixation 555

V. K. Rastogi, E. S. P. Bromfield, S. T. Whitwill, and L. R. Barran A cryptic plasmid of indigenous *Rhizobium meliloti* possesses reiterated *nodC* and *nifE* genes and undergoes DNA rearrangement 563

T. A. Lie, Martin Muilenburg, Nguyen Huu Hiep, and Kamuran Ayhan Cultivation of *Bradyrhizobium* CB756 on sucrose prefermented by yeast 569

T. R. Thiagarajan, R. N. Ames, and M. H. Ahmad Response of cowpea (*Vigna unguiculata*) to inoculation with co-selected vesicular-arbuscular mycorrhizal fungi and *Rhizobium* strains in field trials 573

J. K. Ladha, Minviluz Garcia, R. P. Pareek, and G. Rarivoson Relative contributions to nitrogenase (acetylene reducing) activity of stem and root nodules in *Sesbania rostrata* 577

G. Ciafardini, G. Marinelli, and R. Missich Soil biomass of *Bradyrhizobium japonicum* inoculated via irrigation water 584

D. J. Hume and D. H. Blair Effect of numbers of *Bradyrhizobium japonicum* applied in commercial inoculants on soybean seed yield in Ontario 588

C. Chanaseni and S. Kongngoen Extension programs to promote rhizobial inoculants for soybean and groundnut in Thailand 594

D. L. Eskew, P. M. Gresshoff, M. Doty, and C. Mora Sealed-tube combustion for natural ^{15}N abundance estimation of N_2 fixation and application to supernodulating soybean mutants 598

JULY / JUILLET

ARTICLES

James T. Hollibaugh and Patricia S. Wong Ethanol-extractable substrate pools and the incorporation of thymidine, L-leucine, and other substrates by bacterioplankton 605

Xue Bin Zhang and Yoshiyuki Ohta Binding of mutagenic pyrolyzates to fractions of intestinal bacterial cells 614

H. Anwar, J. L. Strap, and J. W. Costerton Eradication of biofilm cells of *Staphylococcus aureus* with tobramycin and cephalexin 618

Kolothumannil C. Thomas and W. M. Ingledew Relationship of low lysine and high arginine concentrations to efficient ethanolic fermentation of wheat mash 626

Anouar Alasri, Christine Roques, Georges Michel, Corinne Cabassud, and Philippe Aptel Bactericidal properties of peracetic acid and hydrogen peroxide, alone and in combination, and chlorine and formaldehyde against bacterial water strains 635

David B. Knaebel and J. Robie Vestal Effects of intact rhizosphere microbial communities on the mineralization of surfactants in surface soils 643

J. M. Laplace, J. P. Delgenes, R. Moletta, and J. M. Navarro Alcoholic glucose and xylose fermentations by the coculture process: compatibility and typing of associated strains 654

Y. Huang and G. W. Stemke Construction of the physical maps of *Mycoplasma hyopneumoniae* and *Mycoplasma flocculare* and the location of rRNA genes on these maps 659

Clifford S. Mintz and Chang Hua Zou Chromosome mobilization of *Legionella pneumophila* with RK2::Mu and Tn*5*-Mob 664

Nathalie Dion, Jacques Goulet et Patrick Boyaval Évaluation du pouvoir adhérant du *Lactobacillus helveticus* au polystyrène expansé 672

James R. Rosowski Specificity of bacterial attachment sites on the filamentous diatom *Navicula confervacea* (*Bacillariophyceae*) 676

NOTES

R. A. Drijber and W. B. McGill A modification of the method using cellulose overlay agar to isolate and purify cellulolytic cytophagas from enrichment culture 687

Amina Bakhrouf, Moncef Jeddi et Michel J. Gauthier Survie du *Salmonella paratyphi* B et du *Pseudomonas aeruginosa* dans l'eau de mer après incubation ou lavage en présence d'osmolytes 690

Michio Ohba, Kousuke Ueda, and Keio Aizawa Serotyping of *Bacillus thuringiensis* environmental isolates by extracellular heat-stable somatic antigens 694

SYMPOSIUM OF THE CANADIAN SOCIETY OF MICROBIOLOGY / SYMPOSIUM DE LA SOCIÉTÉ CANADIENNE DES MICROBIOLOGISTES

Frits Ørskov and Ida Ørskov *Escherichia coli* serotyping and disease in man and animals 699

Klaus Jann and Barbara Jann Capsules of *Escherichia coli*, expression and biological significance 705

Miguel A. Valvano Pathogenicity and molecular genetics of O-specific side-chain lipopolysaccharides of *Escherichia coli* 711

Jörg Hacker Role of fimbrial adhesins in the pathogenesis of *Escherichia coli* infections 720

J. B. Neilands Mechanism and regulation of synthesis of aerobactin in *Escherichia coli* K12 (pColV-K30) 728

Carlton L. Gyles *Escherichia coli* cytotoxins and enterotoxins 734

Harry Smith Virulence determinants of *Escherichia coli*: present knowledge and questions 747

AUGUST / AOÛT

ARTICLES

K. M. Ghanem and H. H. Yusef Some nutritional requirements of a mixed culture transforming Reichstein's compound S into prednisolone 753

Ying Lu, Robert L. Mach, Karin Affenzeller, and Christian P. Kubicek Regulation of α-aminoadipate reductase from *Penicillium chrysogenum* in relation to the flux from α-aminoadipate into penicillin biosynthesis 758

Irena Ekiel and G. Dennis Sprott Identification of degradation artifacts formed upon treatment of hydroxydiether lipids from methanogens with methanolic HCl 764

Isabel S. Novella, Covadonga Barbés, and Jesús Sánchez Sporulation of *Streptomyces antibioticus* ETHZ 7451 in submerged culture 769

Koji Nomoto, Teruo Yokokura, and Kikuo Nomoto Prevention of 5-fluorouracil-induced infection with indigenous *Escherichia coli* in tumor-bearing mice by nonspecific immunostimulation 774

Per-Åke Vikman The symbiotic vesicle is a major site for respiration in *Frankia* from *Alnus incana* root nodules 779

Gill G. Geesey, Philip J. Bremer, James J. Smith, Michael Muegge, and Larry K. Jang Two-phase model for describing the interactions between copper ions and exopolymers from *Alteromonas atlantica* 785

K. M. Khammas and P. Kaiser Pectin decomposition and associated nitrogen fixation by mixed cultures of *Azospirillum* and *Bacillus* species 794

Isabelle Penot, Nathalie Berges, Christine Guinguene, and Jacques Fages Characterization of *Azospirillum* associated with maize (*Zea mays*) in France, using biochemical tests and plasmid profiles 798

S. M. Hussain Qadri and Kevin K. Smith Nonspecificity of the Anda A60-tb ELISA test for serodiagnosis of mycobacterial disease 804

Carolina M. M. Andrade, Flavia M. Oliveira, and Valter R. Linardi *Candida fennica*: enhancement of protoplast formation and fusion 807

Michael Freitag and Jeffrey J. Morrell Decolorization of the polymeric dye Poly R-478 by wood-inhabiting fungi 811

Rachel L. Adams and Nicholas J. Russell Interactive effects of salt concentration and temperature on growth and lipid composition in the moderately halophilic bacterium *Vibrio costicola* 823

Eliane Dumas-Gaudot, Abdessamad Tahiri-Alaoui, and Nicole Benhamou Cytochemical localization of some polysaccharidic components in the cell walls of *Chalara elegans* during its life cycle 828

G. N. Flatau, R. L. Clement, M. J. Gauthier, and D. C. Puel Effect of incubation of *Escherichia coli* cells with halophyte extracts on their subsequent survival in seawater 838

Karen A. Gutekunst, Leo Pine, Elizabeth White, Sophia Kathariou, and George M. Carlone A filamentous-like mutant of *Listeria monocytogenes* with reduced expression of a 60-kilodalton extracellular protein invades and grows in 3T6 and Caco-2 cells 843

NOTES

Janice Betts and B. Brett Finlay Identification of *Salmonella typhimurium* invasiveness loci 852

Michael F. Dunn and Arthur L. Karr Strain distribution and *in planta* production of an extracellular polysaccharide depolymerase from *Bradyrhizobium japonicum* 857

Gary C. Johnson and Andrew K. Martin Survival of wood-inhabiting fungi stored for 10 years in water and under oil 861

Karen A. Gutekunst, Brian P. Holloway, and George M. Carlone DNA sequence heterogeneity in the gene encoding a 60-kilodalton extracellular protein of *Listeria monocytogenes* and other *Listeria* species 865

Amina Bakhrouf, Moncef Jeddi et Michel J. Gauthier Modification des caractères culturaux et biochimiques du *Salmonella paratyphi* B après incubation dans l'eau de mer 871

SEPTEMBER / SEPTEMBRE

ARTICLES

Sylvain Moineau, Josée Fortier, Hans-W. Ackermann, and Sithian Pandian Characterization of lactococcal bacteriophages from Quebec cheese plants 875

Dennis P. Jackson, Douglas A. Gray, Vincent L. Morris, and Diane A. Cuppels Identification of a DNA region required for growth of *Pseudomonas syringae* pv. *tomato* on tomato plants 883

Hiroshi Tsujibo, Yukio Yoshida, Katsushiro Miyamoto, Chiaki Imada, Yoshiro Okami, and Yoshihiko Inamori Purification, properties, and partial amino acid sequence of chitinase from a marine *Alteromonas* sp. strain O-7 891

Frederick Green III, Carol A. Clausen, Michael J. Larsen, and Terry L. Highley Immuno-scanning electron microscopic localization of extracellular wood-degrading enzymes within the fibrillar sheath of the brown-rot fungus *Postia placenta* 898

Michael J. Larsen and Frederick Green III Mycofibrillar cell wall extensions in the hyphal sheath of *Postia placenta* 905

M. J. Butler, C. C. Davey, P. Krygsman, E. Walczyk, and L. T. Malek Cloning of genetic loci involved in endoprotease activity in *Streptomyces lividans* 66: a novel neutral protease gene with an adjacent divergent putative regulatory gene 912

Michael A. Heitkamp, William J. Adams, and Laurence E. Hallas Glyphosate degradation by immobilized bacteria: laboratory studies showing feasibility for glyphosate removal from waste water 921

R. Premakumar, Marty R. Jacobson, Telisa M. Loveless, and Paul E. Bishop Characterization of transcripts expressed from nitrogenase-3 structural genes of *Azotobacter vinelandii* 929

Raymond H. See, Gerald Krystal, and Anthony W. Chow Receptors for toxic shock syndrome toxin-1 and staphylococcal enterotoxin A on human blood monocytes 937

Pierre Marsot, Allan D. Cembella et Khadija Mouhri Croissance de la biomasse azotée du *Phaeodactylum tricornutum* (*Bacillariophyceae*) en cultures discontinues dialysante et non dialysante 945

Retno Indrati and Yoshiyuki Ohta Purification and properties of alcohol dehydrogenase from a mutant strain of *Candida guilliermondii* deficient in one form of the enzyme 953

P. G. Martin and D. F. Niven Effect of oxygen supply during growth on the production of cytochromes, enzymes, and acid end products by *Haemophilus parasuis* 958

Eduardo V. Soares, José A. Teixeira, and Manuel Mota Interaction between flocculent and nonflocculent cells of *Saccharomyces cerevisiae* 969

Robin E. Harkness, Wolfgang Kusser, Bei-jing Qi, and Edward E. Ishiguro Genetic mapping of the *lytA* and *lytB* loci of *Escherichia coli*, which are involved in penicillin tolerance and control of the stringent response 975

NOTES

S. Y. Newell and J. W. Fell Ergosterol content of living and submerged, decaying leaves and twigs of red mangrove 979

Debra Jan Bibel, Raza Aly, and Henry R. Shinefield Inhibition of microbial adherence by sphinganine 983

H. R. Barbosa and F. Alterthum The role of extracellular polysaccharide in cell viability and nitrogenase activity of *Beijerinckia derxii* 986

Luc R. Gaudreau, Dominique Boucher, Jean M. Lavoie, Ryszard Brzezinski, and Claude V. Déry Use of phage JHJ-1 to assess restriction in the genus *Saccharopolyspora* 989

J. Chen, C. J. Chang, and R. L. Jarret Plasmids from *Xylella fastidiosa* strains 993

K. L. Yap, Y. H. Wong, C. M. Khor, and Y. E. Ooi Rotavirus electropherotypes in Malaysian children 996

Wen-Feng Hsiao, Michael J. Bidochka, and George G. Khachatourians Effects of diphenols on the growth of three entomopathogenic fungi 1000

Allan Matte, Cecil W. Forsberg, and Ann M. Verrinder Gibbins Erratum: Enzymes associated with metabolism of xylose and other pentoses by *Prevotella* (*Bacteroides*) *ruminicola* strains, *Selenomonas ruminantium* D, and *Fibrobacter succinogenes* S85 1003

October / Octobre

MINIREVIEW / MINISYNTHÈSE

Thomas R. Neu Microbial "footprints" and the general ability of microorganisms to label interfaces **1005**

ARTICLES

Stephen P. Harrison, Lance R. Mytton, Leif Skøt, Malcolm Dye, and Ann Cresswell Characterisation of *Rhizobium* isolates by amplification of DNA polymorphisms using random primers **1009**

Vittorio Sambri and Roberto Cevenini Incorporation of cysteine by *Borrelia burgdorferi* and *Borrelia hermsii* **1016**

Marina Basaglia, Giuseppe Concheri, Stefano Cardinali, Maria B. Pasti-Grigsby, and Marco P. Nuti Enhanced degradation of ammonium-pretreated wheat straw by lignocellulolytic *Streptomyces* spp. **1022**

J. Katsuwon and A. J. Anderson Characterization of catalase activities in a root-colonizing isolate of *Pseudomonas putida* **1026**

Henny C. Van der Mei, Marjorie M. Cowan, Michel J. Genet, Paul G. Rouxhet, and Henk J. Busscher Structural and physicochemical surface properties of *Serratia marcescens* strains **1033**

Christian Chauret, Wilfredo L. Barraquio, and Roger Knowles Molybdenum incorporation in denitrifying *Azospirillum brasilense* Sp7 **1042**

Øivind Enger and Berit K. Thorsen Possible ecological implications of the high cell surface hydrophobicity of the fish pathogen *Aeromonas salmonicida* **1048**

C. David Boyle and Bradley R. Kropp Development and comparison of methods for measuring growth of filamentous fungi on wood **1053**

Ruth-Anne Sandaa, Vigdis Lid Torsvik, and Jostein Goksøyr Transferable drug resistance in bacteria from fish-farm sediments **1061**

Nasserdine Sabaou, Hocine Hacène, Achour Bennadji, Hayet Bennadji et Nicole Bounaga Distribution quantitative et qualitative des actinomycètes dans les horizons de sol de surface et profonds d'une palmeraie algérienne **1066**

Pierre Savard, Hugues Charest, Michel Sylvestre, François Shareck, Jeffrey D. Scholten, and Debra Dunaway Mariano Expression of the 4-chlorobenzoate dehalogenase genes from *Pseudomonas* sp. CBS3 in *Escherichia coli* and identification of the gene translation products **1074**

NOTES

A. S. Atwal, R. M. Teather, S. N. Liss, and F. W. Collins Antimicrobial activity of 2-aminophenoxazin-3-one under anaerobic conditions **1084**

Kari L. Cargill, Barry H. Pyle, Richard L. Sauer, and Gordon A. McFeters Erratum: Effects of culture conditions and biofilm formation on the iodine susceptibility of *Legionella pneumophila* **1089**

November / Novembre

MINIREVIEW / MINI-SYNTHÈSE

Laura S. Frost Bacterial conjugation: everybody's doin' it **1091**

ARTICLES

A. A. Adesiyun, M. Eschbach, W. Lenz, and K. P. Schaal Detection of enterotoxigenicity of *Staphylococcus aureus* strains: a comparative use of the modifed Ouchterlony precipitation test, reversed passive latex agglutination test, and avidin–biotin ELISA **1097**

Suresh R. Pai, Yvonne Upshaw, and Shiva P. Singh Characterization of monoclonal antibodies to the outer membrane protein (OmpD) of *Salmonella typhimurium* **1102**

C. M. Jordan, R. J. Wakeman, and J. E. DeVay Toxicity of free riboflavin and methionine–riboflavin solutions to *Phytophthora infestans* and the reduction of potato late blight disease **1108**

U. Chakraborty, B. N. Chakraborty, and M. Kapoor Heat shock protein synthesis and restriction fragment length polymorphism in a virulent and a weakly virulent strain of *Leptosphaeria maculans* **1112**

D. G. Trudeau, R. L. Bernier, D. J. Gannon, and C. W. Forsberg Isolation of *Clostridium acetobutylicum* strains and the preliminary investigation of the hemicellulolytic activities of isolate 3BYR **1120**

Daniel P. Roberts, Carol J. Sheets, and John S. Hartung Evidence for proliferation of *Enterobacter cloacae* on carbohydrates in cucumber and pea spermosphere **1128**

M. S. Reddy, J. E. Rahe, and C. A. Levesque Influence of onion seed bacterization on germination and mycosphere microflora of *Sclerotium cepivorum* sclerotia **1135**

Alan J. Castle, Robert Boulianne, Jianhua Xu, and Alan W. Day Posttranslational modification of fimbrial protein from *Ustilago violacea* **1144**

Paula B. Morais, Allen N. Hagler, Carlos A. Rosa, Leda C. Mendonca-Hagler, and Louis B. Klaczko Yeasts associated with *Drosophila* in tropical forests of Rio de Janeiro, Brazil **1150**

Yousef Haj-Ahmad, Carl A. Bilinski, Inge Russell, and Graham G. Stewart Thiamine secretion in yeast **1156**

Alla S. Kostyukova, Georgi M. Gongadze, Anna Ya. Obraztsova, Konstantin S. Laurinavichus, and Oleg V. Fedorov Protein composition of *Methanococcus thermolithotrophicus* flagella **1162**

Christian G. Gliesche and Peter Hirsch Mutagenesis and chromosome mobilization in *Hyphomicrobium facilis* B-522 **1167**

Takeshi Honda, Yuxin Ni, Toshio Miwatani, Toshiyuki Adachi, and Jeman Kim The thermostable direct hemolysin of *Vibrio parahaemolyticus* is a pore-forming toxin **1175**

NOTES

S. L. Helgerson, S. L. Siemsen, and E. A. Dratz Enrichment of bacteriorhodopsin with isotopically labeled amino acids by biosynthetic incorporation in *Halobacterium halobium* **1181**

Gérard Ozanne and Johanne Lefebvre Specificity of the microimmunofluorescence assay for the serodiagnosis of *Chlamydia pneumoniae* infections **1185**

Daniel Grenier Further evidence for a possible role of trypsin-like activity in the adherence of *Porphyromonas gingivalis* **1189**

Wania N. Wagner, Jaret Bogdan, Deborah Haines, Hugh G. G. Townsend, and Vikram Misra Detection of equine herpesvirus and differentiation of equine herpesvirus type 1 from type 4 by the polymerase chain reaction **1193**

A. E. P. Moore and R. L. Peterson Effect of temperature on sclerotium induction in *Paxillus involutus* **1197**

J. Alcantara, J. S. Padda, and A. B. Schryvers The N-linked oligosaccharides of human lactoferrin are not required for binding to bacterial lactoferrin receptors **1202**

Elena Sláviková, Renáta Vadkertiová, and Anna Kocková-Kratochvílová Yeasts isolated from artificial lake waters **1206**

Scott Halperin, Alicja Kasina, and Margaret Swift Prolonged survival of *Bordetella pertussis* in a simple buffer after nasopharyngeal secretion aspiration **1210**

Brian D. Hoyle, Clarence K. W. Wong, and J. William Costerton Disparate efficacy of tobramycin on Ca^{2+}-, Mg^{2+}-, and HEPES-treated *Pseudomonas aeruginosa* biofilms **1214**

DECEMBER / DÉCEMBRE

REVIEW / SYNTHÈSE

Joseph W. Kloepper and Chantal J. Beauchamp A review of issues related to measuring colonization of plant roots by bacteria **1219**

ARTICLES

Abindra S. Gupthar Segregation of altered parental properties in fusions between *Saccharomyces cerevisiae* and the D-xylose fermenting yeasts *Candida shehatae* and *Pichia stipitis* **1233**

Anil K. Tripathi and Walter Klingmüller Temperature sensitivity of nitrogen fixation in *Azospirillum* spp. **1238**

Alvaro Fonseca Utilization of tartaric acid and related compounds by yeasts: taxonomic implications **1242**

David A. Golden and Larry R. Beuchat Effects of potassium sorbate on growth patterns, morphology, and heat resistance of *Zygosaccharomyces rouxii* at reduced water activity **1252**

Luis M. Quiros, Francisco Parra, and Jose A. Salas Changes in ribosomal proteins during colony development in *Streptomyces* **1260**

H. Abdel Basit, J. Scott Angle, S. Salem, and E. M. Gewaily Phage coating of soybean seed reduces nodulation by indigenous soil bradyrhizobia **1264**

R. S. Utkhede and E. M. Smith Promotion of apple tree growth and fruit production by the EBW-4 strain of *Bacillus subtilis* in apple replant disease soil **1270**

R. D. Lumsden, C. J. Ridout, M. E. Vendemia, D. J. Harrison, R. M. Waters, and J. F. Walter Characterization of major secondary metabolites produced in soilless mix by a formulated strain of the biocontrol fungus *Gliocladium virens* **1274**

Lyle G. Whyte and William E. Inniss Cold shock proteins and cold acclimation proteins in a psychrotrophic bacterium **1281**

Christine Laurent-Winter, and Oumaima Ibrahim-Granet Heat-shock response in *Fonsecaea pedrosoi*, a pathogenic fungus **1286**

Clemens K. Peterbauer, Erich Heidenreich, Ralph T. Baker, and Christian P. Kubicek Effect of benomyl and benomyl resistance on cellulase formation by *Trichoderma reesei* and *Trichoderma harzianum* **1292**

C. L. Masy, A. Henquinet, and M. M. Mestdagh Flocculation of *Saccharomyces cerevisiae*: inhibition by sugars **1298**

Pia K. Hansen, Bjørn T. Lunestad, and Ole B. Samuelsen Effects of oxytetracycline, oxolinic acid, and flumequine on bacteria in an artificial marine fish farm sediment **1307**

C. S. Tsai, J.-L. Shi, B. W. Beehler, and B. Beck Enzyme activities of D-glucose metabolism in the fission yeast *Schizosaccharomyces pombe* **1313**

NOTES

F. G. Ferris, T. R. Jack, and B. J. Bramhill Corrosion products associated with attached bacteria at an oil field water injection plant **1320**

William J. Zimmerman, and Barry H. Rosen Cyanobiont diversity within and among cycads of one field site **1324**

Francisco A. Tomei, Larry L. Barton, Cheryl L. Lemanski, and Thomas G. Zocco Reduction of selenate and selenite to elemental selenium by *Wolinella succinogenes* **1328**

Elisabet Artursson and Gertrud Puu A phosphatidylinositol-specific phospholipase C from *Cytophaga*: production, purification, and properties **1334**